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Insights on the Canadian Economy

Terms of Trade in Central Canada

by Ryan Macdonald

Micro-economic Analysis Division
18-I, R.H. Coats Building, Ottawa, K1A 0T6

Telephone: 1-800-263-1136

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Statistics Canada
18th Floor, Section I, R.H. Coats Building
100 Tunney's Pasture Driveway
Ottawa Ontario K1A 0T6

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How to obtain more information:
National inquiries line: 1-800-263-1136
E-mail inquiries: infostats@statcan.gc.ca

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Abstract

This paper examines Ontario's and Quebec's adjustments to the resource boom. Higher commodity prices, an appreciating dollar, and increased foreign competition between 2002 and 2007 led to a restructuring of the Central Canadian economies. The restructuring manifested itself in all areas of the economy: manufacturing employment and output declined, while services and construction rose; within manufacturing there were declines across most industries in Ontario, and a shift away from consumer products towards capital products in Quebec; purchasing power increased in Ontario and Quebec as export and import prices adjusted.

Executive Summary

This paper examines the economic responses of Ontario and Quebec to the resource boom for the period 2002 to 2007. It details where change occurred, and its magnitude.

The rapid rise of commodity prices, the accompanying rise in the exchange rate, and foreign competition acted as a catalyst for restructuring in Ontario and Quebec. Ontario and Quebec are the largest economies in Canada, and although they have resource industries, their economies are manufacturing oriented. The large increases in resource prices and changes in the exchange rate between 2002 and 2007 raised input costs for, and reduced the competitiveness of, their manufacturing industries. At the same time, rising commodity prices stimulated investment in resource industries and changed relative prices, particularly the terms of trade. When confronted with changes in input costs, competition, and relative prices, the economies in Ontario and Quebec adjusted – employment moved between industries, some areas retracted while others expanded, and incomes changed.

These adjustments are discussed through the course of the paper. Changes in Ontario's and Quebec's economic structures are compared and contrasted, and a number of issues are discussed. They are outlined below.

- How did the manufacturing industries in Ontario and Quebec react?

  In Ontario, real manufacturing GDP declined in nearly every manufacturing industry. The confluence of rising input costs, falling competitiveness as the dollar rose and competition from emerging nations, particularly China, led to a general retrenchment of manufacturing activity. Overall, real manufacturing GDP declined by an average of 1.1% per year.

  In Quebec, real manufacturing GDP tended to decline in industries that produce consumer goods – clothing and textiles, paper, printing and furniture – and tended to increase in industries that produce capital goods. The manufacturing saw some industries decline while others grew, but there was little overall decline in manufacturing GDP.

- How did employment change in Ontario and Quebec?

  Employment adjusted across industries. Manufacturing employment in Ontario had an average annual decline of 3% between 2003 and 2007. In Quebec, manufacturing and forestry, fishing, mining, oil and gas extraction saw average annual declines of 3% and 2% respectively. However, in both provinces, employment gains in other areas, particularly construction and services, more than made up for the job losses, contributing to annual average job growth of 2% in both provinces.

  Job creation in Ontario and Quebec was sufficiently strong that unemployment rates declined despite the strongest foreign competition in many years, a rapid appreciation of the exchange rate, and record setting commodity prices. Ontario's unemployment rate dropped from 6.9% to 6.5%; Quebec's unemployment rate declined from 8.4% to 7.0%.

- What happened to the terms of trade in Ontario and Quebec?

In Ontario and Quebec, the terms of trade improved between 2002 and 2007, but for different reasons. In Ontario, the appreciating dollar forced manufactures to lower their prices to compete in the United States and export prices declined. However, the appreciating dollar and foreign competition lowered import prices even more. Ontario's terms of trade rose as a result. In Quebec, the terms of trade improved as export prices rose and import prices fell. Rising commodity prices, particularly for metal ores and metal products were the source of the increase in export prices.

- Did domestic prices in Ontario and Quebec reflect the forces re-shaping employment and manufacturing?

The CPIs in Ontario and Quebec reflected the rising commodity prices, increased importance of services and the influence of foreign competition. The prices of many durable and semi-durable goods stopped rising in the late 1990s, and were in decline for most of the post-2000 period. Prices for non-durables began rising more quickly, as did services prices, at the same time that durable and semi-durable goods prices stopped rising, and began declining.

1 Introduction

Commodity cycles have led to a re-structuring of Canada's economy because of the role that resources occupy. Because resource industry outputs constitute an important input to all production processes, resource price changes are felt all across the economy. Resources also constitute an important component of Canada's international trade and, as a result, changes in global demand for resources affect the exchange rate (see: Bailliu and King 2005, Amano and van Norden 1993).

In Canada, resource industries account for about 8.7% of GDP, roughly the same weight as all non-durable manufacturing.[1] However, because of the importance of commodities in exports and investment and their impact on the exchange rate, changes in resource demand exert a disproportionate influence on the Canadian economy. Since Canada's natural resource wealth is not distributed equally across the country, the influence of resources varies substantially by region. As a result, commodity cycles that lead to broad shifts in economic structure are more pronounced for individual provinces.

The resource boom that began in 2003 has been an important force shaping provincial economies. The integration of Asia into the global economy increased the world's manufacturing capacity, thereby helping to lower industrial prices, while at the same time boosting demand for resources (Francis 2007, Economist 2005). Meanwhile, the loonie appreciated, reflecting increased global demand for commodities. Unlike previous resource cycles, however, the post-2002 boom also accompanied a decline in many prices for consumer and investment goods on world markets. This paper explores the impact on central Canada of these relative price shifts.

The adjustment that Canada underwent in response to the China-induced price changes looks, at first blush, like 'Dutch Disease'– a situation where a resource boom leads to an appreciation of the national currency and a widespread reduction in manufacturing output. However, manufacturers in Canada adjusted to the competition from Asia by re-orienting to produce more durables and less non-durables (where competition from emerging nations is particularly strong). At the same time, Canada's terms of trade improved as commodity prices increased, raising the purchasing power of Canadian incomes. In fact, the 19.0% increase in the terms of trade between 2002 and 2007 helped lift real income enough to support more consumption and investment in the face of rising energy prices (Macdonald 2007a). As a result, from 2003 to 2007, Canada went through a period that we recently characterized as 'China Syndrome' rather than 'Dutch Disease' (Macdonald 2007b).[2]

This paper shows that the impact of these forces varies across central Canada. Quebec and Ontario are the manufacturing heartland of Canada. Since 2002, they have accounted for an average of 75.1% of manufacturing employment and 76.8% of manufacturing output. Their exports are tilted towards manufactured products; in Ontario, automotive products alone make up 40.4% of exports, while in Quebec machinery and equipment accounts for 35.4% of exports.

1. Resources include agriculture; forestry and support activities; fishing, hunting, and trapping; and, mining, oil and gas extraction.
2. See Macdonald (2007b).

While both provinces have rich resource bases in mining, forestry and agricultural commodities, most of their energy must be imported.

The size of manufacturing in Quebec and Ontario, which some expected to be a weak performing sector during a commodity boom, and their reliance on imported energy make their response to rising commodity prices a revealing story about adapting to rapid change.

2 Manufacturing and the resource boom in central Canada

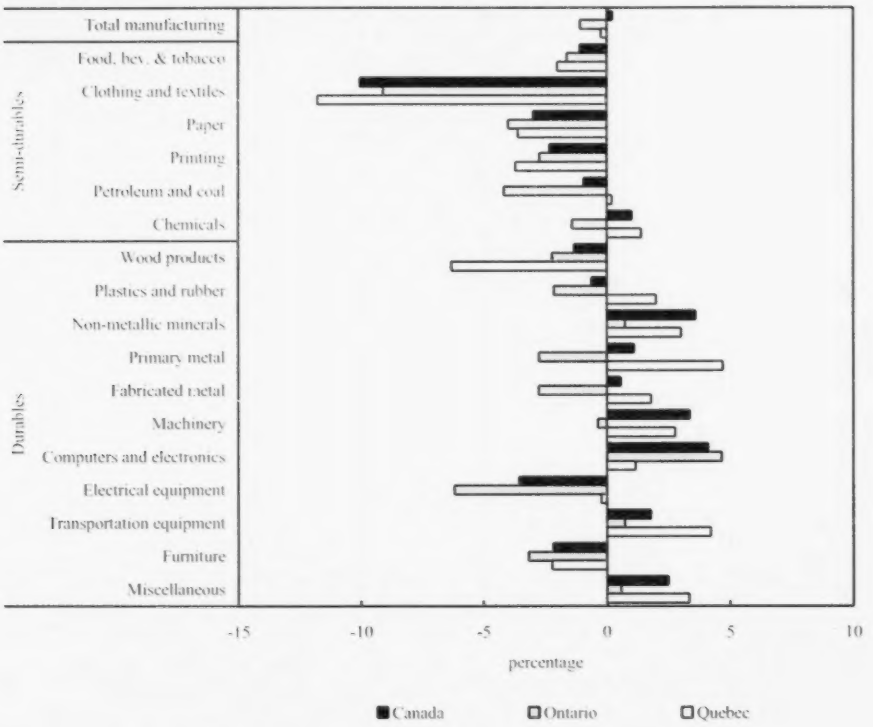
'Dutch Disease' refers to a situation where rising commodity prices and an appreciating exchange rate lead to declining manufacturing output and rising economy-wide unemployment.[3] Canada's recent performance contradicts these stylized facts. For Canada as a whole, manufacturing output rose by 0.2% per year between 2002 and 2007, despite a 59.5% appreciation of the dollar and a 294.3% rise in energy prices. Although manufacturing shed 323,000 jobs from January 2003 to December 2007 as firms raised productivity, the overall unemployment rate in Canada declined from 7.4% to 6.0%.

Rather than a wholesale retrenchment in manufacturing, output losses were confined to areas like clothing that were most exposed to international competition or experienced declining demand, such as for forestry products and autos (Figure 1). Nevertheless, demand for other manufactured goods remained robust, particularly for capital goods, leading to an offsetting increase in output.

However, individual provinces differ from the national average. In Ontario, manufacturing output declined by an average of 1.1% per year between 2002 and 2007, while factory jobs fell by 183,000 between January 2003 and December 2007. The output losses were spread across almost all manufacturing industries in the province with the exception of non-metallic minerals, computer and electronic equipment and transportation equipment (Figure 1). Due to the broad range of industries contracting, the manufacturing industry in Ontario was showing the symptoms of 'Dutch Disease' more than Canada as a whole.

3. Some manufacturing industries have been quite resilient in the face of rapid changes in their competitive environment. Hutchinson (1994) examines the response of the manufacturing industries in Norway, the Netherlands and the U.K. He concludes (p. 326) that:
"For the economy of the Netherlands, where the term 'Dutch disease' was originally applied, very little systematic and long-term net adverse consequences of natural gas development on the manufacturing sector were found."

Figure 1
Average annual manufacturing GDP change, 2002 to 2007



Source: Cansim 379-0027 and 379-0025.

Manufacturing in Quebec was essentially the same as the national average (Figure 1). The average annual change in manufacturing GDP from 2002 to 2007 was a modest decrease of 0.2%, while shedding 127,000 jobs. Quebec's manufacturing output declined modestly, with larger cutbacks in non-durable industries related to clothing offsetting smaller gains in many durable manufacturing industries.

Changes in non-durable manufacturing in Ontario and Quebec have been similar. Both provinces had sizable declines in industries experiencing growing competition from emerging economies. Textiles, clothing and leather have contracted in both provinces. The paper and printing industries also have seen lower output due to changing preferences for electronic media.

A difference emerges in durable goods manufacturing. In Ontario, output has contracted in a majority of industries, notably primary metals and fabricated metal manufacturing. Exceptions were non-metallic minerals, computers and electronics and transportation equipment.

In Quebec, durable goods have generally done well. Output has increased in almost all industries, with the exception of wood, electrical equipment and furniture (in the last case, competition from emerging economies displaced domestic production).

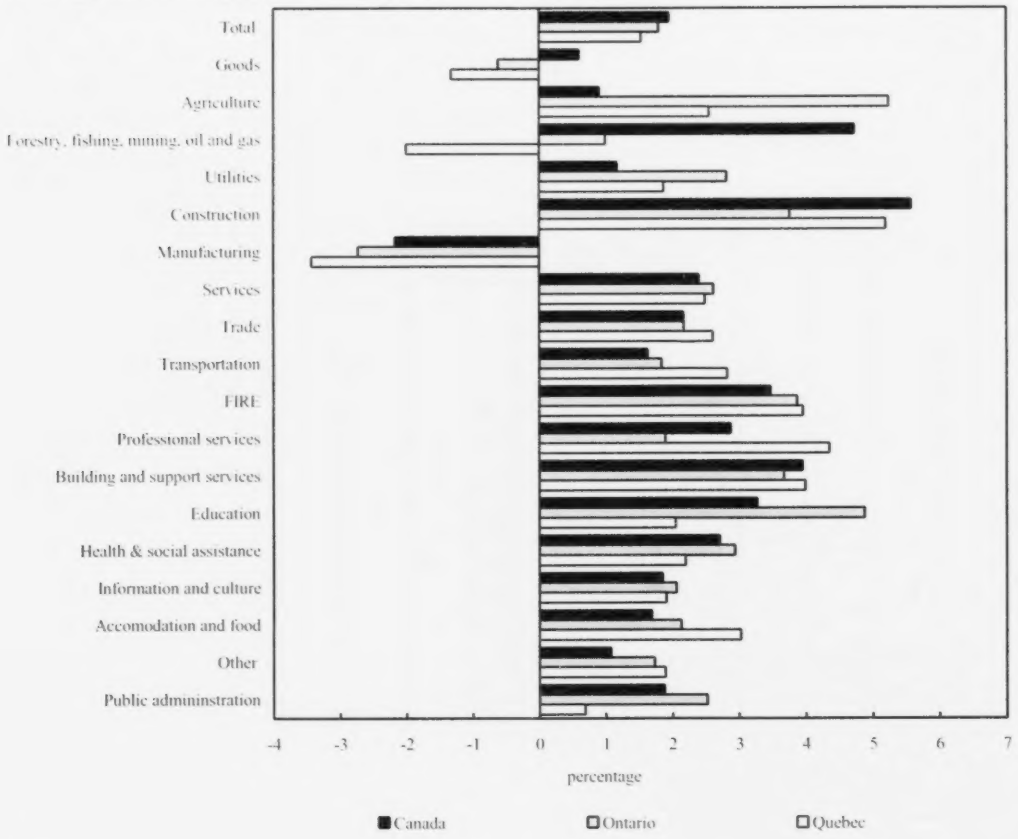
3 Employment and wage growth aides transition

The changes underway in Ontario and Quebec extend beyond manufacturing. The commodity boom affected most areas of their economies, as industries adjusted to take advantage of higher commodity demand and a rising exchange rate. With resource prices climbing, commodity producers made more profit and moved to expand production. Wages rose and employment shifted away from manufacturing toward mining (Figure 2 and 3). Increased income in resources, and demand for services such as financing for mining development, also lifted demand for services. As a result, wages and employment in services rose.

Ontario's economy remained buoyant, adding a total of 453,000 jobs from January 2003 to December 2007, despite the losses in manufacturing. A similar change occurred in Quebec, as the economy added 263,000 jobs despite cuts in agriculture, forestry and manufacturing. In both provinces, growth came from increases in services and construction. Overall, the unemployment rate declined from 6.9% to 6.5% in Ontario and from 8.4% to 7.0% in Quebec.

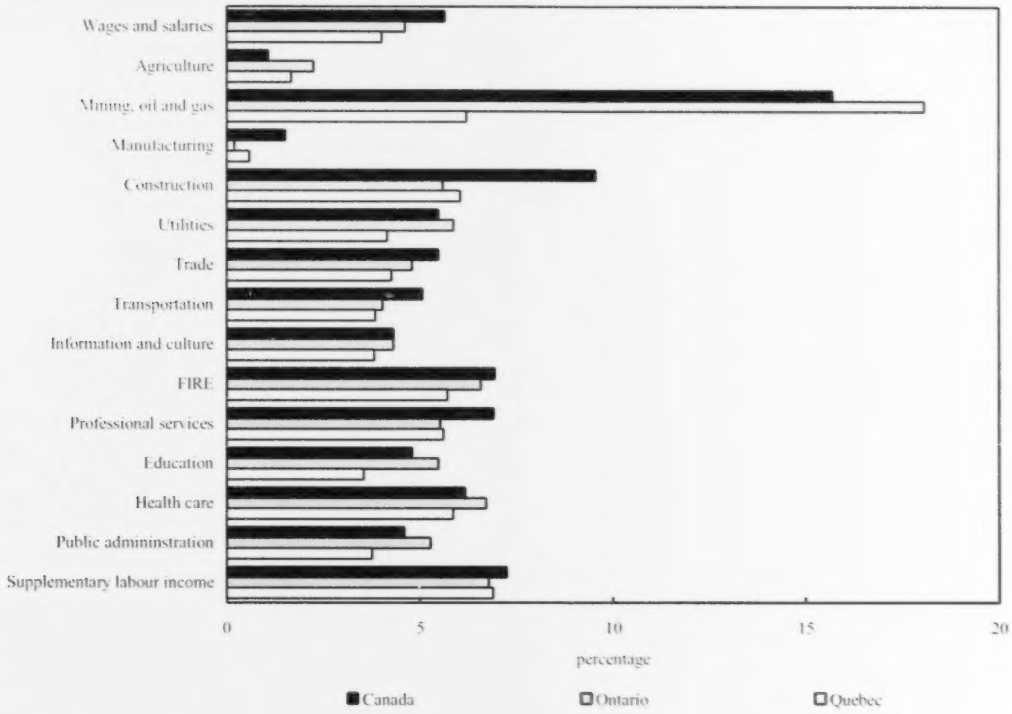
The pattern of wages and salary increases across industries are remarkably similar to the changes in employment. Gains have tended to be largest in mining and lowest in manufacturing. Growth across service industries was fairly uniform.

Figure 2
Average annual employment change by industry, 2002 to 2007



Source: Cansim 282-0088.

Figure 3
Average annual wage and salary growth, 2002 to 2007



Source: Cansim 382-0006.

4 Provincial terms of trade support real income growth

Despite the increase in energy prices, the terms of trade improved in both Quebec and Ontario between 2002 and 2007 (Figure 4). The terms of trade is the ratio of export prices to import prices, and represents the rate at which exports are traded for imports. An improvement in the terms of trade allows an economy to spend more than its domestic production alone would suggest, by increasing purchasing power on world markets.

Figure 4
Terms of trade vs. commodity prices

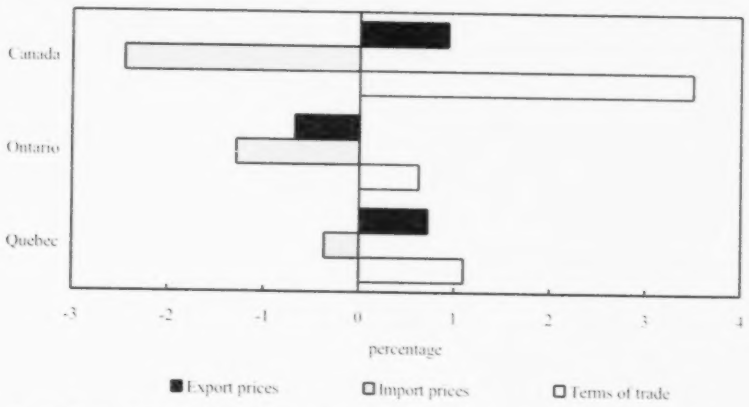
Source: Cansim 384-0002 and author's calculations.

The effect of terms-of-trade changes on real income can be measured using real gross domestic income (GDI). Real GDI is GDP deflated by the price of domestic spending. Rather than focusing only on production, it accounts for changes in purchasing power. It is therefore an income concept that reflects the goods and services an economy can use for consumption and investment instead of the goods and services an economy produces.

At the national level, the rising terms of trade were an important source of real income growth between 2002 and 2007. Canadian real GDI growth averaged 3.9%, 1.1 percentage points more than real GDP, as the terms-of-trade improvement allowed consumption (3.8%) and investment (6.7%) to increase faster than real output. In Ontario, consumption rose an average of 3.4% as real GDI (2.4%) growth outpaced real GDP (2.2%). In Quebec, consumption growth averaged 3.3% as real GDI (2.6%) rose faster than real GDP (2.0%).

Although the terms of trade increased after 2002 in both Quebec and Ontario, the sources of the improvements were noticeably different. For Quebec, the effect of Asia integrating into world markets contributed to higher export prices (notably metals) and lower import prices, despite the rise in energy prices (Figure 5). The combination of lower manufactured prices and the appreciation of the dollar translated into a sufficiently large drop in non-energy import prices to overcome the rising price of energy imports. The net result of lower import prices and rising export prices increased Quebec's terms of trade by an average of 1.1% per year.

Figure 5
Average price changes, 2002 to 2007



Source: Cansim 384-0002 and author's calculations.

Ontario's terms of trade also improved, but the gain came from import prices declining faster than the drop in export prices. The pattern of price movements suggests that as Asia integrated into world markets and the dollar appreciated, downward pressure on the price of manufactured goods led manufacturers in Ontario to lower their prices. But, overall export prices did not decline as quickly as import prices, and the terms of trade rose. Still, the increase in Ontario's terms of trade was only half that of Quebec, and markedly less than for all of Canada.

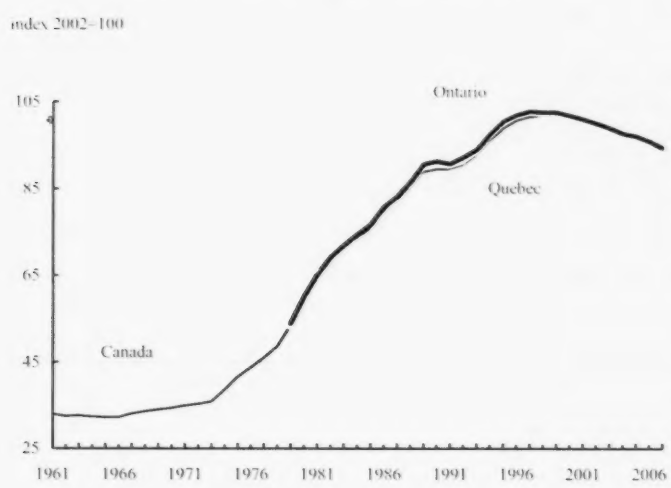
5 Consumer and investment prices adjust

Prices for consumer goods and services and investment products have also shifted in Quebec and Ontario. Prices for items like furniture, appliances, clothes and shoes have declined since the late 1990s. Asia's low-cost labour gave consumers in Canada access to cheaper products. As Asia increasingly became the source of those products, prices for durable and semi-durable goods fell.

The declines in durables and semi-durables prices were the first in the history of the provincial consumer price indexes for these products (Figure 6). In Quebec and Ontario, durable goods prices levelled off in the late 1990s, and began declining thereafter. Semi-durables followed a similar pattern.

Between 2002 and 2007, durables prices fell an average of 1.2% per year in both Quebec and Ontario (Table 1), while semi-durables declined by 0.7% in Quebec and 1.3% in Ontario. Non-durables prices (notably energy and food) rose quickly over the same period, averaging 3.4% per year in both provinces.

Figure 6
Durable prices in Canada, Quebec and Ontario



Source: Cansim 326-0020.

Table 1
Average annual prince changes, 2002 to 2007

	Canada	Quebec	Ontario
		percentage	
Consumer prices	2.2	2.1	2.0
Durables	-1.1	-1.2	-1.2
Semi-durables	-0.8	-0.7	-1.3
Non-durables	3.4	3.4	3.4
Services	2.8	2.4	2.7
Investment prices	1.8	0.8	0.8
Structures	5.1	4.5	5.1
Machinery	-4.6	-4.8	-4.7

Source: Cansim 326-0020 and author's calculations.

Prices for investment goods also adjusted as the resource boom led to a higher exchange rate. Prices for machinery, which is primarily imported, fell at an annual average rate of 4.8% in Quebec and 4.7% in Ontario. These declines were offset by strong demand from the resource sector and housing driving up the price of structures, and this raised the cost of capital goods slightly in both provinces.

6 China syndrome, Dutch disease and central Canada

Between 2002 and 2007, Quebec and Ontario began adjusting to the emergence of China as an economic powerhouse. Their manufacturing sectors shed jobs, shifting towards more durable goods production in Quebec while retrenching in Ontario. Despite the loss of factory jobs, construction and service sector employment more than made up the difference, leading to overall job growth and falling unemployment rates. Mining industries in both provinces benefited from rising prices, leading to higher employment and wages.

In both provinces, the rising terms of trade contributed to real income growth. However, the relative changes in import and export prices were quite different. In Ontario, export prices did not fall as fast as import prices; in Quebec, import prices declined while export prices increased.

In response to Asia's integration into the world economy, and the transition underway in Canada, consumer prices and investment prices have adjusted in both provinces. Prices for outputs have declined while prices for inputs and non-traded goods and services have increased.

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